Description

SUPPORT BRACKET

Field of Invention

[0001] The present invention generally relates to a support bracket assembly and particularly to a support bracket assembly mountable to a vertically extending object such as a pole or a tree and capable of supporting hanging items such as a plant or wind chime.

Discussion of the Prior Art

[0002] Many support brackets are constructed of iron or steel and may be bulky and unattractive depending on the particular construction. Support brackets and the like may also have limited uses due to their design and ability to support a limited weight or type of item. Typically, support brackets are designed for a particular function for attachment to a specific structure. They are therefore not adaptable or versatile to allow for attachment to structures of varying sizes. In addition, support structures may not be configured to support multiple items such as mul-

tiple hanging plants or decorative items.

[0003] Thus, there is a desire and need in the art to provide a versatile and robust support bracket that will provide support for hanging a variety of different types and shapes of items, while at the same time incorporates attractive and decorative features.

Summary of Invention

[0004] Accordingly, the present invention provides a support bracket assembly mountable to a vertically extending object such as a pole or a tree, and capable of supporting hanging items.

[0005] In one embodiment of the present invention, a support bracket assembly for supporting a hanging item includes at least one mounting bracket configured to contact a vertically extending object. A load supporting member is positioned at a horizontal distance around the object and connected to the at least one mounting bracket.

[0006] In another embodiment of the present invention, a support bracket assembly includes a load supporting member and at least one first mounting bracket configured to contact a vertically extending object at a first location and adjustably connected to the load supporting member. At least one second mounting bracket is also included and is

connected to the load supporting member and configured to contact the vertically extending object at a second location.

[0007] In yet another embodiment of the present invention, a support bracket assembly includes a load supporting member and a plurality of mounting brackets adjustably connected to the load supporting member and configured to contact a vertically extending object.

[0008] Other features of the present invention will become more apparent to persons having ordinary skill in the art to which the present invention pertains from the following description and claims taken in conjunction with the accompanying figures.

Brief Description of Drawings

[0009] The foregoing features, as well as other features, will become apparent with reference to the description and figures below, in which like numerals represent like elements, and in which:

[0010] Figure 1 is a front view of an embodiment of the support bracket assembly of the present invention;

[0011] Figure 2 is a top view of an embodiment of a load supporting member of the present invention;

[0012] Figure 3A and 3B are front and side views of a hook

bracket of the present invention;

[0013] Figure 4 is a side view of a first mounting bracket of the present invention;

[0014] Figures 5A and 5B illustrate an alternate embodiment of the attachment of a first mounting bracket to the load supporting member;

[0015] Figure 6 illustrates an alternate embodiment of the attachment of a first mounting bracket to a hook bracket;

[0016] Figure 7 is an exploded side view of the attachment of the first mounting bracket to a hook bracket shown in Figure 6;

[0017] Figure 8 is an exploded perspective view of the first mounting bracket and hook bracket shown in Figure 6;

[0018] Figure 9 is a front view of a bottom portion of the first mounting bracket shown in Figure 6;

[0019] Figure 10 is a perspective view of an embodiment of a hook bracket of the present invention;

[0020] Figure 11 is a front view of an embodiment of the support bracket assembly of the present invention;

[0021] Figure 12 is an exploded view of a second mounting bracket of the present invention;

[0022] Figure 13A is a top view of an embodiment of a load supporting member of the present invention;

[0023] Figure 13B is a sectional view taken along line 13B-13B in Figure 13A;

[0024] Figure 14 is an embodiment of a support bracket assembly of the present invention; and

[0025] Figure 15 is an embodiment of a hanger bracket of the present invention.

Detailed Description

[0026] The present invention generally relates to a support bracket assembly configured to support hanging items and attachable to an object such as a pole, post or tree.

[0027] The primary components of a support bracket assembly 20 of the present invention may be constructed of a variety of different types of material including steel, iron or other materials suited for the desired load. Support bracket assembly 20 may also be constructed of plastic or other materials capable of bearing the load of items being supported on support bracket assembly 20. The primary components of support bracket assembly 20 may be constructed of flat stock material or tubular, and may be surface coated with a variety of different treatments to change the aesthetic appearance of support bracket assembly 20. For instance, support bracket assembly 20 may be painted any color to meet a user's needs or coated

with Patina to induce a rusted appearance.

[0028] As shown in the embodiment in Figures 1 and 2, support bracket assembly 20 may include a load supporting member 22 (such as a hoop shown in Figure 1), and at least one first mounting bracket 30 configured to contact a vertically extending object 21 such as a pole, post or tree.

[0029] Load supporting member 22 may be positioned around object 21 and spaced a horizontal distance from the object such that load supporting member 22 does not contact object 21. When mounted on object 21, support bracket assembly 20 is held in position by the gravitational force of first mounting brackets 30 forced against object 21 when items are hung on support bracket assembly 20. The weight also forces first mounting brackets 30 closer against object 21, more securely holding support bracket assembly 20 in position. To further secure support bracket assembly 20 to an object 21 such as a tree, a holding member may be included on first mounting bracket 30, such as a protrusion 100 shown in Figure 1, or a rubber pad 102 as shown in Figure 11. When the gravitational force urges first mounting bracket 30 against object 21, protrusion 100 (Figure 1) or rubber pad 102 (Figure 11) is forced against object 21 further securing

support bracket assembly 20 in position. Alternatively, first mounting bracket 30 may include a plurality of holes 104 along a bottom portion as shown in Figure 9. As shown in Figure 14, an alternate embodiment of the holding member includes a nail or pin 108 that may be driven through one of the plurality of holes 104 and into the object 21 for which support bracket 20 is mounted. Holes 104 also allow first mounting bracket 30 to be adjusted to fit the particular object 21 by placing pin 108 in a selected hole 104 to meet the size of object 21.

[0030] Load supporting member 22 may be round, oval, square or any suitable shape that will allow it to be positioned around the particular object 21. Load supporting member 22 may also be constructed as two or more separate components connected together by a variety of different attachment methods. As shown in Figure 2, load supporting member 22 may include a first support 42 and a second support 44. First and second supports 42 and 44 may be connected using a threadable attachment, such as at least one bolt 38 inserted through mating holes on first and second supports 42 and 44, and secured by a nut 40. This example illustrates an embodiment using two bolts connected at two locations on load supporting member 22,

but it is to be understood that load supporting member 22 may alternatively be configured as a unitary component and may include one or more such threaded attachments.

[0031] As shown in Figure 1, first mounting brackets 30 may be attached to load supporting member 22 by a separate hook bracket 34. As more clearly shown in Figures 3A, 3B and 4, hook bracket 34 may include a pin 60 and hole 58 on a lower portion 88 of hook bracket 34 as shown in Figures 3A and 3B. Pin 60 and hole 58 allow hook bracket 34 to be adjustably connected to first mounting bracket 30. In this embodiment, first mounting bracket 30 includes a plurality of holes 62 and a pin 64 that mate with pin 60 and hole 58 as shown in Figure 4. The adjustability of first mounting bracket 30 to hook bracket 34 allows first mounting bracket 30 to be adjustably mounted to load supporting member 22 at a variety of different angles and vertical distances relative to load supporting member 22 to accommodate various sizes of object 21.

[0032] Hook bracket 34 can be attached to load supporting member 22 using a bolt 36 as shown in Figures 1, 3A and 6. In this embodiment, bolt 36 goes through a hole 70 on a downwardly curving arm 68, through a corresponding

hole 39 in load supporting member 22, and a hole 66 on a second arm 78. This attachment may be secured with a nut 37 as shown in Figures 3A and 6.

[0033] Figures 5A and 5B illustrate an alternate attachment method for attaching first mounting brackets 30 to load supporting member 22. In this embodiment, load supporting member 22 may include at least one extending bracket 54 on either a top or bottom side of load supporting member 22 with each extending bracket 54 having one or more holes 56 vertically aligned to each other. In this embodiment, first mounting bracket 30 includes one or more attachment holes 72 that correspond to holes 56. First mounting bracket 30 is positioned between the pair of extending brackets 54. Bolts 74 connect first mounting bracket 30 to extending brackets 54 and nuts 76 secure the attachment as shown in Figure 5B. Depending on the vertical height of brackets 54, the number of vertically aligned holes 56 may vary. Connecting first mounting brackets 30 to differently positioned holes allows adjustment of first mounting bracket 30 to load supporting member 22 to accommodate various sizes of object 21.

[0034] Figures 6-8 illustrate yet another attachment method for

adjustably attaching first mounting brackets 30 to load supporting member 22. In this embodiment, load supporting member 22 includes holes 39 and hook bracket 34 and is connected to load supporting member 22 with a bolt 36 and a nut 37 as shown in Figure 6 (and as shown in Figure 1). Hook bracket 34 in this embodiment includes a plurality of grooves 84 radially arranged around a bottom hole 86. First mounting brackets 30 include a plurality of grooves 90 radially arranged around a center hole 92 that mate with grooves 84 of hook bracket 34 as shown in Figure 7 and 8. Grooves 84 may be die stamped into lower portion 88 of hook bracket 34 and grooves 90 may likewise be die stamped into first mounting bracket 30. Figures 7 and 8 provide details of the attachment of first mounting bracket 30 and hook bracket 34. A bolt 94, nut 96 and lock washer 98 may be used to adjustably connect first mounting bracket 30 to hook bracket 34. Grooves 84 interlock with grooves 90 similar to interlocking gears. This allows first mounting bracket 30 and hook bracket 34 to be connected at a particular angled orientation relative to each other and then locked into position with bolt 94 and nut 96. This positioning of first mounting bracket 30 permits it to be oriented at different desired

angles and vertical distances relative to load supporting member 22 to accommodate various sizes of object 21.

[0035] To further illustrate the versatility of support bracket assembly 20, an alternate embodiment of hook bracket 34 may include an optional tube member 80 as shown in Figure 10. Tube member 80 is configured to mount a flag pole or like apparatus to load supporting member 22 and may be welded to hook bracket 34 as shown at 82 in Figure 10.

[0036] Support bracket assembly 20 may also include one or more hanger brackets 32 mounted to load supporting member 22 as shown in Figures 11, 14 and 15. Hanger bracket 32 may be attached to load supporting member 22 at any desired locations along load supporting member 22, by mechanical means such as a bolt 36 as shown in Figure 14. Hanger bracket 32 may alternatively be releasably hung directly on load supporting member 22 without the use of attachment components as shown in Figure 11. Hanger bracket 32 provides a bracket for which items such as plants and other hanging decorations may then be supported. Hanging items may also be detachably connected directly to load supporting member 22 or to first mounting brackets 30 with hooks or any other suit-

able connecting means known and available in the art.

[0037] In yet another embodiment of the present invention illustrated in Figure 11, support bracket assembly 20 may include a load supporting member 22, at least one first mounting bracket 30, and at least one second mounting bracket 24. Second mounting bracket 24 is configured to contact a vertically extending object 21 such as a pole, post, tree or any other vertically extending object and includes an arcuate brace 41 connected to at least one arm member 28 as shown in Figure 12A. Arm member 28 is configured to extend outward from object 21 and brace 41 is configured to mount to or contact object 21. Arm member 28 includes a hole 31 as shown in Figures 11 and 12 to allow second mounting bracket 24 to be connected to first mounting bracket 30. Second mounting bracket 24 may also be constructed as two separate components. In this embodiment shown in Figure 12B, arcuate brace 41 includes an extension portion 26 having a plurality of apertures 43, and arm member 28 includes a plurality of apertures 45. Plurality of apertures 43 and 45 allow second mounting bracket 24 to be adjusted to a selected length to accommodate different sized objects 21. A bolt 36 and nut 37 secure the second mounting bracket at the

desired length.

[0038] In the embodiment of Figure 11, first mounting brackets 30 are also configured to contact object 21 and may be adjustably connected to load supporting member 22 with hook bracket 34 similar to the embodiment in Figure 1, except in Figure 11 hook bracket 34 is positioned up-side-down. As in the earlier embodiments, hook bracket 34 may include a pin 60 and hole 58 to mate with corresponding plurality of holes 62 and pin 64 of first mounting bracket 30. Alternatively, the attachment between hook bracket 34 and first mounting bracket 30 may include the attachment method shown in Figures 6-8 or a threaded attachment using a standard bolt and nut available in the art.

[0039] As with the other embodiments, when mounted on object 21, support bracket assembly 20 is held in position by the gravitational force of first mounting brackets 30 being forced against object 21. In this embodiment, second mounting brackets 24 are also forced against object 21. First mounting brackets 30 may also include a holding member such as protrusion 100, nail or pin 108 or rubber pads 102 as in the previous embodiments to further secure support bracket assembly 20 to an object 21.

[0040] Other features of the present invention may include an alternate embodiment of load supporting member 22 as illustrated in Figure 13A. In this embodiment, load supporting member 22 may be constructed as one unitary component having an open area 23 to allow load supporting member 22 to be placed around object 21. In this embodiment, load supporting member 22 may be forced together and locked in a closed position by a variety of different connecting means. One such connecting means includes the use of a pin 48 inserted and slid within a key shaped slot 50 as shown in Figures 13A and 13B. Load supporting member 22 may also be locked into a closed position using a variety of other attachment means, such a bolt and nut attachment as shown in Figure 2.

[0041] In yet another embodiment shown in Figure 14, first mounting brackets 30 include a second top bracket 114. Second top bracket 114 may be welded to brackets 30 for aesthetic purposes or to provide more options for hanging items to support bracket assembly 20. Also shown in Figure 14, a strap 106 may be positioned around a lower portion of first mounting brackets 30 to further secure support bracket assembly 20 to object 21. Strap 106 may include a clamp 110 to tighten strap 106 tightly against

object 21, thereby securely holding first mounting brackets 30 against object 21. Clamp 110 may be a standard clamp assembly readily available similar to a clamp assembly used on a radiator hose.

[0042] While the invention has been described in conjunction with specific embodiments, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, the present invention attempts to embrace all such alternatives, modifications and variations that fall within the spirit and scope of the appended claims.